

## ***REVISION D***



# **Perform OSMA's SMA Insight/Oversight of ELV Launch Services**

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Bryan O'Connor  
Chief Safety and Mission Assurance

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Date

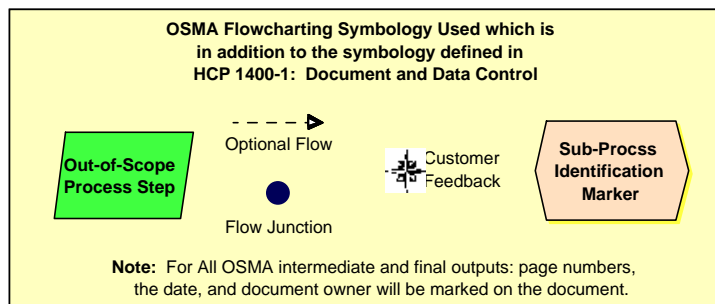
## DOCUMENT HISTORY LOG

Status (Draft/ Baseline/ Revision/ Canceled)	Document Revision	Effective Date	Description
Baseline		January 13, 2000	
Revision	A	April 14, 2000	Editorial corrections to references 4.2, 4.3, and 4.8 and steps 6.04, and 6.15, and Section 7 Quality Record; Modified the Section 5 flowchart and steps 6.03, through 6.08, 6.12; and 6.13 and added reference 4.5 (new #) and new steps (new #) 6.09, 6.10 and 6.13.
	B	February 1, 2002	Changed HOWI title. Added customer list, customer feedback to sections 5 and steps 6.07 and 6.14. Updated references 4.1, 4.2, 4.10 & 4.11. Deleted reference 4.5. Editorial corrections to section 6 changing KSC SMA to KSC SMA. Corrected "launch" to "launch services" throughout. Changed name of Quality Record in Section 7.
	C	March 31, 2004	Editorial and organizational changes to all sections.
	D	January 17, 2006	Updated to new Organization Structure

HOWI Author: RAD/Roger Mielec (for MSD)

OSMA Staff Member Responsible for this HOWI: MSD/John Tinsley

Customers for this HOWI: Internal: Chief SMA  
External: none



## 1. Purpose

The purpose of this Office of Safety and Mission Assurance (OSMA) Headquarters Office Work Instruction (HOWI) is to document the process for participation in expendable launch vehicle (ELV) launch services preparation activities and their contingency planning. This OSMA HOWI provides the flowchart for participation in subject activities and contingency planning. This HOWI also specifies the Quality Records associated with the process.

## 2. Scope and Applicability

This HOWI is applicable to all OSMA staff at NASA Headquarters in their role of providing Safety and Mission Assurance (SMA) insight/oversight for launch services of expendable launch vehicles (ELV). This HOWI is mainly for the use of the OSMA staff member charged with the responsibility as the lead in this process.

## 3. Definitions

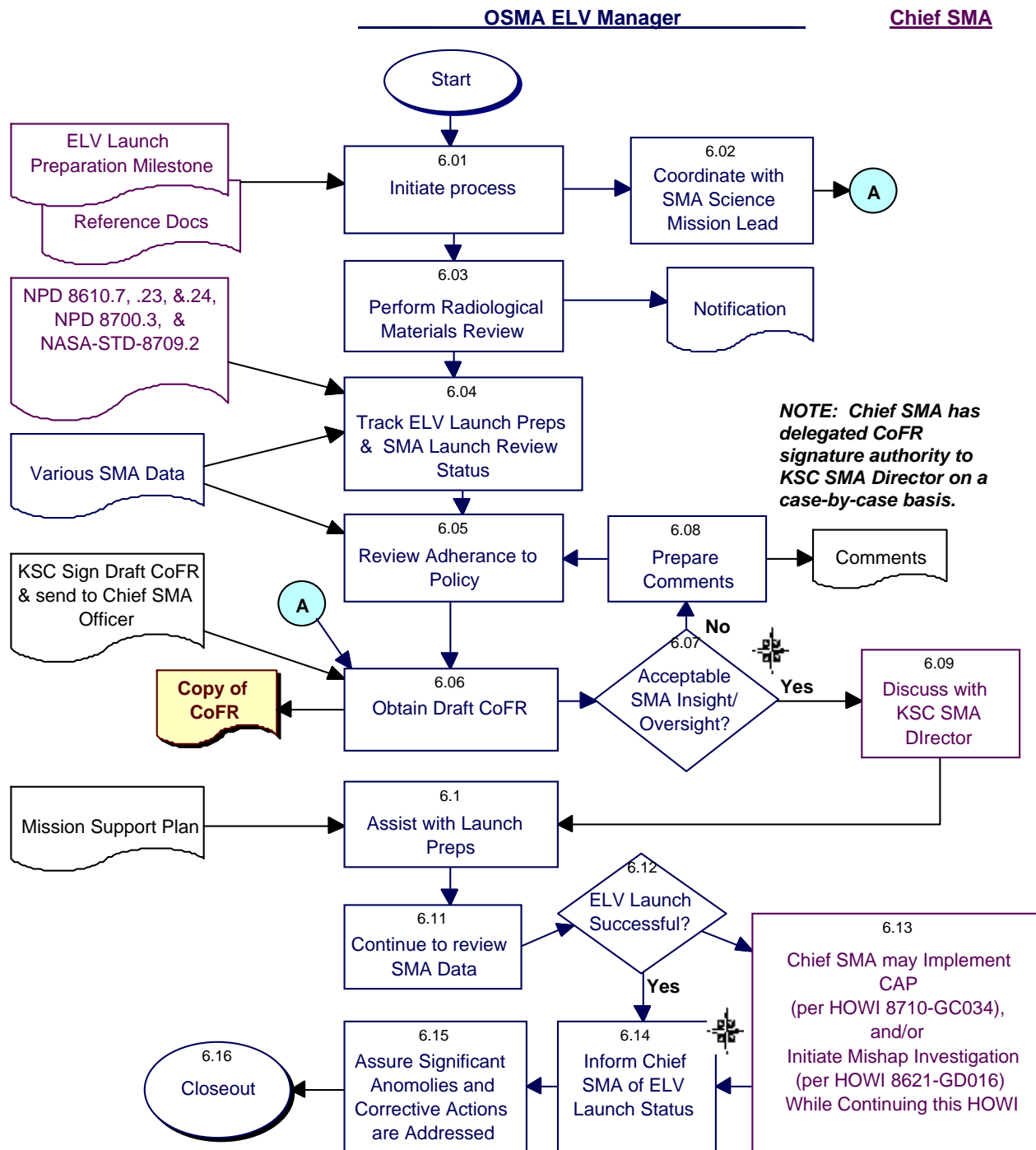
- 3.1. Chief SMA: Chief, Safety and Mission Assurance
- 3.2. CAP: Contingency Action Plan
- 3.3. CoFR: Certificate of Flight Readiness
- 3.4. Contingency: A contingency is defined as any mishap, mission failure, incident, or close call that impacts programs and/or significantly delays or jeopardizes operations or prevents accomplishment of a primary objective.
- 3.5. Expendable Launch Vehicle (ELV): These include orbital launch vehicles (such as Delta, Titan, Atlas) that launch payloads.
- 3.6. HATS: Headquarters Action Tracking System
- 3.7. Insight: Surveillance mode requiring only the monitoring of customer-identified metrics and contracted milestones. Insight is a continuum that can range from low intensity, such as reviewing quarterly reports, to high intensity, such as the customer performing surveys and reviews.
- 3.8. NFSAM: Nuclear Flight Safety Assurance Manager
- 3.9. NLSA: Nuclear Launch Safety Approval
- 3.10. Oversight: Surveillance mode which is in-line with the supplier's processes. The customer retains and exercises the right to concur or non-concur with the supplier's decisions. Non-concurrence must be resolved before the supplier can proceed. Oversight is a continuum that can range from low-intensity, such as customer concurrence in reviews (i.e.; PDR, CDR), to high intensity oversight, in which the customer has day-to-day involvement in the supplier's decision making processes (i.e., hardware inspections).

## 4. Reference Documents

The documents listed in this section are used as reference materials for performing the processes covered by the Quality Management System (QMS). Since all NASA Headquarters Level 1 (QMS Manual) and Level 2 (Headquarters Common Processes) documents are applicable to the QMS, they need not be listed in this section unless specifically referenced in this OSMA HOWI.

- 4.1. [NPD 8610.7: Launch Services Risk Mitigation Policy for NASA-Owned or NASA-Sponsored Payloads](#)
- 4.2. [NPD 8700.1: NASA Policy for Safety and Mission Success](#)
- 4.3. [NPD 8610.23: Technical Management of Expendable Launch Vehicle \(ELV\) Launch Services](#)
- 4.4. [NPD 8610.24: Expendable Launch Vehicle \(ELV\) Launch Service Prelaunch Readiness Reviews](#)
- 4.5. [NPD 8700.3, Safety and Mission Assurance \(SMA\) Policy for NASA Spacecraft, Instruments, and Launch Services](#)
- 4.6. [NPR 8705.4: Risk Classification for NASA Payloads](#)
- 4.7. [NPR 8715.3: NASA Safety Manual](#)
- 4.8. [NASA-STD-8709.2: NASA Safety and Mission Assurance Roles and Responsibilities for Expendable Launch Vehicle Services](#)
- 4.9. [NASA-STD-8719.8: Expendable Launch Vehicle Payload Safety Review Process Standard](#)
- 4.10. [Letter, Office of Safety and Mission Assurance, dated October 8, 1997, subject: Delegation of Authority for NASA Safety and Mission Assurance \(SMA\) Concurrence on Certificates of Flight Readiness \(CoFR\) for Spacecraft Missions on Expendable Launch Vehicles/Services.](#)
- 4.11. [Office of Space Operations Contingency Action Plan](#)  
(NOTE: This plan is updated approximately monthly).
- 4.12. [HOWI 8710-GC034, Manage Emergency Operations Center \(Shuttle\)](#)

## 5. Flowchart



## 6. Procedure

**Note:** The need for providing SMA insight/oversight for an ELV launch can come from various sources. Sources can include the NASA Administrator, Mission Directorate Associate Administrator, Chief Safety and Mission Assurance, or Center/Project/Program Management and their staffs. All requests are routed through the Chief SMA for approval. The documents listed in Section 4 above provide further detail on when OSMA support would be used.

**Note:** Chief SMA has delegated the CoFR signature authority to the KSC SMA Director on a case-by-case basis.

### 6.01 OSMA ELV Manager Initiate Process:

The OSMA is notified via the Flight Planning Board that an ELV launch service is planned. The OSMA ELV Manager reviews the status of the launch and initiates the process.

### 6.02 OSMA ELV Manager Coordinate with SMA Science Mission Lead

The OSMA ELV Manager will coordinate with the OSMA SMA Science Mission Lead throughout the launch service preparation process. This coordination is ad hoc based on the mission and individual SMA issues.

### 6.03 OSMA ELV Manager Perform Radiological Materials Review:

The OSMA ELV Manager reviews the vehicle and payload data to determine if ANY radiological materials will be present at launch. If there are radiological materials planned, the OSMA Nuclear Flight Safety Assurance Manager (NFSAM) is contacted. HOWI 8710-GD014 is used in accordance with NPR 8715.3, Chapter 5. The OSMA ELV Manager will remain in contact with the NFSAM to assist in the obtaining of Nuclear Launch Safety Approval (NLSA).

### 6.04 OSMA ELV Manager Track ELV Launch Preps & SMA Launch Service Review Status:

Staff monitors the results of the NASA and non-NASA managed ELV launches – success/failure, problems, and status of any investigations or assessments. Tracking is done per NPD 8610.23 and NPD 8610.24 guidelines for the current launch and reviews SMA data for past launches of similar vehicles.

### 6.05 OSMA ELV Manager Review Adherence to Policy:

The ELV Manager will track the available launch readiness information for the upcoming NASA-managed ELV launches.

The ELV Manager, as required by the MSD Division Director, may attend NASA-managed ELV launch service preparation reviews to gather information on SMA processes and issues concerning ELV launch readiness, success, and the associated risk. The OSMA ELV Manager will review KSC/SMA ELV launch position based on SMA policy and assessments leading up to the launch.

6.06 OSMA ELV Manager Obtain Draft CoFR

The OSMA ELV Manager receives the draft CoFR from KSC and reviews it for completeness, accuracy, and acceptability against the guidelines in the documents referenced in Section 4, above.

6.07 OSMA ELV Manager Acceptable SMA Insight/Oversight?

The ELV Manager receives insight information from KSC/SMA as to SMA issues and preliminary SMA position concerning upcoming NASA-managed ELV launch. The OSMA staff members participating with the ELV launch service assess the effectiveness of the SMA preparations for the launch to determine if acceptable SMA insight/oversight exists per the Section 4 references.

The decision on acceptability is based on the professional expertise of the OSMA ELV Manager. In making this assessment, the OSMA ELV Manager may confer with the Chief SMA or others involved with the mission.

6.08 OSMA ELV Manager Prepare Comments:

OSMA comments on the draft CoFR, if any, are collated and forwarded to the KSC SMA Director. This forwarding may be done verbally, electronically, or in writing based on the scope and urgency of the comments. The comments are passed to the KSC SMA Director by the OSMA ELV Manager.

6.09 Chief SMA Discuss with KSC SMA Director

The Chief SMA will review the launch preparation and any CoFR issues with the KSC SMA Director prior to the launch. The review is based on his professional expertise and experience for completeness, accuracy, and conformance to NASA SMA policy. The Chief SMA may designate the OSMA signature on the CoFR to the KSC SMA Director. (See reference 4.8).

6.10 OSMA ELV Manager Assist with Launch Preparations

The OSMA ELV Manager is 'on-call' to assist the KSC SMA Director with any final prelaunch preparations as the representative of the Chief SMA. This support will vary with each launch.

6.11 OSMA ELV Manager Continue to Review SMA Data:

Throughout the remainder of the prelaunch and early flight phases of the mission, the OSMA ELV Manager continues to monitor the SMA mission data and readiness reviews.

6.12 OSMA ELV Manager ELV Launch Successful?

*ELV Launch Director will determine if ELV launch was successful. The Associate Administrator for Space Operations Mission Directorate (or AA for affected Mission Directorate) will determine an ELV launch contingency based on launch results.*

The OSMA ELV Manager will assess launch success.

6.13 Chief SMA May Implement CAP, Initiate Emergency Response and/or Mishap Investigation While Continuing with this HOWI:

For launches which are not fully successful as determined by the Space Operations Mission Directorate (SOMD), the Chief SMA may implement the OSMA ELV CAP. Implementation of these response(s) is at the option of the Chief SMA based on his/her expertise and the available information. This may be based on official contingency declaration by the SOMD responsible for the mission or the Chief SMA's professional expertise. If the SOMD has not declared a contingency based on a failed ELV launch attempt, the Chief SMA may elect to invoke the OSMA ELV CAP similar to HOWI Q8710-GC034, or initiate a mishap investigation per HOWI 8621-GD016 or a combination of these.

6.14 OSMA ELV Manager Inform Chief SMA of ELV Launch Status:

The OSMA ELV Manager will inform the Chief SMA on the launch operations.

6.15 OSMA ELV Manager Assure Significant Anomalies and Corrective Actions are Addressed:

The OSMA ELV Manager will continue to represent the Chief SMA in assisting and oversight of the KSC SMA Director for the closeout of significant anomalies and other corrective actions. The OSMA ELV Manager will informally provide OSMA staff members with lessons learned from the mission.

6.16 OSMA Staff Closeout:

When the launch operations are complete, then the process is closed out.

## 7. Quality Records

Record ID	Owner	Location	Media Electronic /hardcopy	Schedule Number & Item Number	Retention & Disposition
Copy of CoFR	OSMA Corres Control	OSMA Chron File	Hardcopy	Schedule: 1 Item: 22	Retire to FRC when 5 years old in 5 year blocks, then retire to NARA when 10 years old